

TECHNICAL SPECIFICATIONS

TABLE OF CONTENTS

DIVISION 1 GENERAL REQUIREMENTS

Section 01130 Environmental Protection  
Section 01440 Contractor Quality Control

DIVISION 2 Site Work

Section 02482 Dredging

DIVISIONS 3 through 16 (NOT USED)

-End of Section Table of Contents-

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01130

ENVIRONMENTAL PROTECTION

TABLE OF CONTENTS

PART 1 GENERAL

- 1.1 DEFINITIONS
- 1.2 ENVIRONMENTAL PROTECTION REQUIREMENTS
  - 1.2.1 Environmental Protection Plan
    - 1.2.1.1 Protection of Features
    - 1.2.1.2 Procedures
    - 1.2.1.3 Regulatory Requirements, Permits or Licenses
    - 1.2.1.4 Environmental Monitoring Plans
- 1.3 SUBCONTRACTORS
- 1.4 REGULATORY REQUIREMENTS
- 1.5 MEASUREMENT AND PAYMENT

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

- 3.1 PROTECTION OF ENVIRONMENTAL RESOURCES
  - 3.1.1 Protection of Land Resources
    - 3.1.1.1 Disposal of Solid Wastes
    - 3.1.1.2 Disposal of Chemical Wastes
- 3.2 HISTORICAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES
- 3.3 PROTECTION OF WATER RESOURCES
  - 3.3.1 Dredging Operations
  - 3.3.2 Monitoring of Water Areas Affected by Construction Activities
- 3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES
- 3.5 PROTECTION OF AIR RESOURCES
  - 3.5.1 Hydrocarbons and Carbon Monoxide
  - 3.5.2 Odors
  - 3.5.3 Monitoring Air Quality
- 3.6 INSPECTION
- 3.7 POST CONSTRUCTION CLEANUP
- 3.8 RESTORATION OF LANDSCAPE DAMAGE
- 3.9 MAINTENANCE OF POLLUTION FACILITIES
- 3.10 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL

-End of Section Table of Contents-

## SECTION 01130

## ENVIRONMENTAL PROTECTION

## PART 1 GENERAL

## 1.1 DEFINITIONS

For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noises, solid waste, radiant energy and radioactive materials, as well as other pollutants.

## 1.2 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Comply with Federal, State, and local regulations pertaining to the environment, including but not limited to water, air, and noise pollution.

## 1.2.1 ENVIRONMENTAL PROTECTION PLAN

Within 21 days after receipt of Notice of Award of the contract, the Contractor shall submit in writing an environmental protection plan. Prior to starting work, the Contractor shall meet with representatives of the Contracting Officer to develop mutual understanding relative to compliance with this provision and administration of the environmental protection program. Approval of the Contractor's plan will not relieve the Contractor of his responsibility for adequate and continuing control of pollutants and other environmental protection measures. The Government reserves the right to make changes to the environmental protection plan and operations as necessary to maintain satisfactory environmental protection performance. The environmental protection plan shall include but not be limited to the following:

## 1.2.1.1 Protection of Features

The Contractor shall determine methods for the protection of features to be preserved within authorized work areas. The Contractor shall prepare a listing of methods to protect resources needing protection, i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological and cultural resources.

#### 1.2.1.2 Procedures

The Contractor shall implement procedures to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident or failure to follow the procedures set out in the environmental protection plan.

#### 1.2.1.3 Permit or License

The Contractor shall obtain all needed permits or licenses.

#### 1.2.1.4 Environmental Monitoring Plans

The Contractor shall include environmental monitoring plans for the job site, which incorporate land, water, air and noise monitoring.

### 1.3 SUBCONTRACTORS

Assurance of compliance with this section by subcontractors will be the responsibility of the Contractor.

### 1.4 PERMITS OBTAINED BY THE CORPS OF ENGINEERS

The Corps of Engineers will obtain the 404 permit for this project. See also Contract Clause entitled "PERMITS AND RESPONSIBILITIES".

### 1.5 REGULATORY REQUIREMENTS

The Contractor shall comply with all state regulatory and statutory requirements.

### 1.6 MEASUREMENT AND PAYMENT

No separate payment or direct payment will be made for the cost of the work covered under this section, and such work will be considered as a subsidiary obligation of the Contractor.

## PART 2 PRODUCTS (Not Applicable)

## PART 3 EXECUTION

### 3.1 PROTECTION OF ENVIRONMENTAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the

drawings and specifications. Environmental protection shall be as stated in the following paragraphs.

### 3.1.1 Protection of Land Resources

#### 3.1.1.1 Disposal of Solid Wastes

Solid wastes (excluding material resulting from clearing and grubbing) shall be placed in containers which are emptied on a regular schedule. All handling and disposal shall be conducted to prevent contamination. The Contractor shall transport all solid waste off of the work site and dispose of it in compliance with federal, state, and local requirements for solid waste disposal.

#### 3.1.1.2 Disposal of Chemical Wastes

Chemical wastes shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with federal, state, and local regulations.

### 3.2 HISTORICAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

Known historical, archaeological and cultural resources within the Contractor's work area will be so designated by the Contracting Officer and precautions taken to preserve all such resources as they existed at the time they were pointed out to the Contractor. The Contractor shall install all protection for these resources and shall be responsible for their preservation during this contract. If items of apparent historical or archaeological interest are discovered in the course of any construction activities, they shall be left undisturbed and the Contractor shall immediately report the find to the Contracting Officer.

### 3.3 PROTECTION OF WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters.

#### 3.3.1 Dredging Operations

The Contractor shall plan his dredging operations and perform all work necessary to minimize adverse impact or violation of the water quality standard.

#### 3.3.2 Monitoring of Water Areas Affected by Construction Activities

The contractor shall monitor all water areas affected by construction activities.

### 3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to

and damage of fish and wildlife. Species that require specific attention, along with measures for their protection shall be listed by the Contractor prior to beginning of construction operations.

### 3.5 PROTECTION OF AIR RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the applicable state air pollution regulations and all Federal emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency shall be maintained for those construction operations and activities specified in this section. Special management techniques as set out below shall be implemented to control air pollution by the construction activities, which are included in the contract.

#### 3.5.1 Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to federal and state allowable limits at all times.

#### 3.5.2 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

#### 3.5.3 Monitoring Air Quality

Monitoring of air quality shall be the responsibility of the Contractor. The Contractor shall monitor all air areas affected by the construction activities.

### 3.6 INSPECTION

The Contracting Officer will notify the Contractor in writing, of any observed noncompliance with the Contractor's environmental protection plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action, and take such action as may be approved. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspension.

### 3.7 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all areas used for construction.

### 3.8 RESTORATION OF LANDSCAPE DAMAGE

The Contractor shall restore all landscape features damaged or

destroyed during construction operations outside the limits of the approved work areas. Such restoration shall be in accordance with the plans submitted for approval to the Contracting Officer.

### 3.9 MAINTENANCE OF POLLUTION FACILITIES

The Contractor shall maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

### 3.10 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL

The Contractor shall train his personnel in all phases of environmental protection. The Training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities (vegetative covers, and instruments required for monitoring purposes) to ensure adequate and continuous environmental pollution control.

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01440

CONTRACTOR QUALITY CONTROL

TABLE OF CONTENTS

PART 1	GENERAL
1.1	REFERENCES (Not Applicable)
1.2	PAYMENT
PART 2	PRODUCTS (Not Applicable)
PART 3	EXECUTION
3.1	GENERAL
3.2	QUALITY CONTROL PLAN
3.2.1	General
3.2.2	Content of the CQC Plan
3.2.3	Acceptance of Plan
3.2.4	Notification of Changes
3.3	COORDINATION MEETING
3.4	QUALITY CONTROL ORGANIZATION
3.4.1	CQC System Manager
3.5	SUBMITTALS (Not Applicable)
3.6	CONTROL
3.6.1	Preparatory Phase
3.6.2	Initial Phase
3.6.3	Follow-up Phase
3.6.4	Additional Preparatory and Initial Phases
3.7	TESTS (Not Applicable)
3.8	COMPLETION INSPECTION
3.9	DOCUMENTATION
3.10	NOTIFICATION OF NONCOMPLIANCE



## SECTION 01440

## CONTRACTOR QUALITY CONTROL

## PART 1 GENERAL

## 1.1 REFERENCES (Not Applicable)

## 1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

## PART 2 PRODUCTS (Not Applicable)

## PART 3 EXECUTION

## 3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause entitled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product that complies with the contract requirements. The system shall cover all construction operations, both on-site and off-site, and shall be keyed to the proposed construction sequence.

## 3.2 QUALITY CONTROL PLAN

## 3.2.1 General

The Contractor shall furnish for review by the Government, as soon as possible after receipt of Notice of Award of the contract but not later than 10 calendar days prior to the Preconstruction Conference, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause entitled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 15 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted

interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

### 3.2.2 Content of the CQC Plan

The CQC plan shall include, as a minimum, the following to cover all construction operations, both on-site and off-site, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC system manager who shall report to the project manager or someone higher in the Contractor's organization. Project manager in this context shall mean the individual with responsibility for the overall management of the project including quality and production.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters will also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, off-site fabricators, suppliers, and purchasing agents.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and

acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task that is separate and distinct from other tasks and has separate control requirements. It could be identified by different trades or disciplines, or it could be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there is frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

### 3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC plan and operations including removal of personnel, as necessary, to obtain the quality specified.

### 3.2.4 Notification of Changes

After acceptance of the QC plan, the Contractor shall notify the Contracting Officer in writing a minimum of seven calendar days prior to any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

## 3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the Quality Control Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both on-site and off-site work, and the interrelationship of

Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures that may require corrective action by the Contractor.

### 3.4 QUALITY CONTROL ORGANIZATION

#### 3.4.1 CQC System Manager

The Contractor shall identify an individual within his organization at the worksite who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. This CQC System Manager shall be subject to acceptance by the Contracting Officer. The CQC System Manager shall be assigned as System Manager but may have other duties in addition to quality control. The CQC System Manager must have completed the Corps of Engineer's training course entitled "Construction Quality Management for Contractors". This course is periodically offered by the Memphis District as well as other Corps Districts.

### 3.5 SUBMITTALS (Not Applicable)

### 3.6 CONTROL

The controls shall include at least three phases of control to be conducted by the CQC System Manager for all definable features of work, as follows:

#### 3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work and shall include:

- a. A review of each paragraph of applicable specifications.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. A check to assure that provisions have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for constructing the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that phase of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. The Government shall be notified at least 24 hours in advance of beginning any of the required action of the preparatory phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

### 3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of preliminary work to ensure that it is in compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verification of full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets

minimum acceptable workmanship standards. Compare with sample panels is appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work on-site, or any time acceptable specified quality standards are not being met.

### 3.6.3 Follow-up Phase

Daily checks shall be performed to assure continuing compliance with contract requirements, including control testing, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work that may be affected by the deficient work. The Contractor shall not build upon or conceal non-conforming work.

### 3.6.4 Additional Preparatory and Initial Phases

As determined by the Government, additional preparatory and initial phases may be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, on-site production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

## 3.7 TESTS (Not Applicable)

## 3.8 COMPLETION INSPECTION

At the completion of each dredging assignment, the Government will perform an after dredging hydrographic survey of the dredge

cut. This survey will serve as the completion inspection of each dredging assignment.

### 3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, and description.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals reviewed, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work

and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every seven days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

### 3.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --



DIVISION 2 - SITE WORK

SECTION 02482

DREDGING

TABLE OF CONTENTS

PART 1 GENERAL

1.1 SCOPE OF DREDGING

PART 2 PRODUCTS

2.1 DREDGE

2.1.1 Size of Dredge

2.1.2 Spare Cutters and Impellers

2.2 ATTENDANT PLANT

2.2.1 General

2.2.2 Anchor Barge

2.2.3 Barge Mounted Crane

2.2.4 Fuel Barge

2.2.5 Landing Barge

2.2.6 Oil-water Separator

2.2.7 Pipelines

2.2.8 Tenders

2.2.9 Workboat/Crewboat

2.2.10 Dozers

2.3 TECHNICAL EQUIPMENT

2.3.1 Production Recording Equipment

2.3.2 Differential Global Positioning System (DGPS)

2.3.3 Depth Sounding Devices

2.3.4 Radio Equipment

2.3.4.1 VHF FM Marine Radio

2.3.4.2 Lowband FM Radio

2.3.5 Cellular Phone

2.3.6 Gyro Compass

PART 3 EXECUTION (Not Applicable)

-End of Section Table of Contents-

## SECTION 02482 - DREDGING

## PART 1 GENERAL

## 1.1 SCOPE OF DREDGING

This contract is for the lease of one Cutterhead Hydraulic Pipeline Dredge, fully operated with attendant plant, of not less than 27-inch pump discharge and not less than 3,900 brake horsepower. The dredge will be used principally for harbor maintenance work at Hickman, KY; New Madrid, MO; Caruthersville, MO; Osceola, AR; Memphis, TN; and Helena, AR. The dredge may be used, however, at any point on the Mississippi River between Wickliffe, Kentucky (Mile 952 AHP) and Greenville, Mississippi (Mile 537 AHP).

## PART 2 PRODUCTS

## 2.1 DREDGE

## 2.1.1 Size of Dredge

The dredge shall be not less than 27 inch I.D. discharge. The dredge shall have a minimum manufacturer's horsepower rating for continuous operation as specified in the table below for each respective size of dredge. The yardages in the table are estimates and will be used as the basis to evaluate bids. The dredge inspectors will monitor the actual dredge output, as determined by before and after dredging surveys performed by the Government, against the applicable quantity shown. Failure to maintain that quantity will result in a reduction in payments in accordance with paragraph 00800-8.c, unless the Contracting Officer determines that circumstances beyond the control and without the fault or negligence of the Contractor caused the reduction in output. Dredging performed at some locations will require approximately 15,000 ft of discharge line with a 50 ft lift; during this time the dredge shall not be required to meet the specified minimum output. Dredges larger than 27 inch will be considered but the estimated output will be based on the quantity shown for a 27 inch dredge. The discharge size will be considered to be the minimum diameter of either the pump discharge or discharge line, whichever is less.

Size of Dredge Pump Discharge (I.D.)	Minimum Continuous BHP Connected to Dredge Pump	Estimated Minimum Output Per Pumping Hour Cubic Yards
27 inches	3,900	1100

The dredge ladder and spuds shall be of such construction and configuration that the dredge will dig material to a depth of 50 ft below the water surface without exceeding a ladder angle of 45 degrees from horizontal, and will make a 250-ft bottom width cut at a depth of 50 ft without exceeding a swing angle of 45 degrees to either side of the cut centerline. Spuds shall be capable of holding the dredge in place under the dredging conditions above in currents up to 12 ft per second. The dredge shall be capable of starting work and working efficiently at a depth of 12 ft.

The draft of the dredge shall not exceed 9 ft. The dredge shall be of such design as to work efficiently and permit passage of other vessels while working in a 250-ft wide channel. A check (flap) valve will be located on the dredge near the discharge side of the pump. The suction pipe shall have an intake section of pipe with valve near the pump for the purpose of inserting dye in the pump to determine the velocity and shall have a device that will degas the dredged material. The sound level in the lever room shall not exceed 90 dB.

### 2.1.2 Spare Cutters and Impellers

The Contractor shall have available for use at all times, a minimum of three interchangeable pump impellers in the sizes that can be accommodated by the pump to permit the dredge to work under varying conditions of length of discharge line and lift. The Contractor shall have available at all times a minimum of two serviceable, basket-type 6 or 7 blade cutterheads.

## 2.2 ATTENDANT PLANT

### 2.2.1 General

Attendant plant shall include the following as minimum requirements and shall be composed of such fuel barges, tenders, floating discharge pipe, shore pipe, spill barge, derrick or anchor barges, landing barge, water barges, and other attendant or auxiliary plant as may be required for operations under these specifications, whether or not items are specifically mentioned. The auxiliary and attendant plant shall be in good condition and of sufficient size and capacity to efficiently serve the dredge. The dredge tenders and other attendant plant requiring internal combustion engines for propulsion or auxiliary power requirements, except outboard motors, shall not be equipped with a type of engine requiring gasoline or other highly volatile fuels for operations. No division in pay will be made for attendant plant. It will be considered as part of the dredging plant and shall be kept in operating condition at all times regardless of pay status of the dredge.

### 2.2.2 Anchor Barge

One derrick barge with not less than 30-ft boom length for moving and shifting anchors.

### 2.2.3 Barge Mounted Crane

One (1) barge mounted crane having a lifting capacity of at least 50 tons, with not less than 80-ft boom length and equipped with one clamshell bucket.

### 2.2.4 Fuel Barge

One (1) fuel barge capable of servicing the dredge for 7 days.

### 2.2.5 Landing Barge

One (1) small shallow draft barge with sufficient walkway and handrails shall be required for use as a landing barge.

### 2.2.6 Oil-water Separator

One multistage oil-water separator and one 1000-gal minimum, waste oil tank.

### 2.2.7 Pipelines

The work involved will require pipelines ranging from 600 ft to 15,000 ft in length. The following minimum pipeline equipment shall be furnished: 6,500 ft of pontoon discharge line of not less than 27 in ID (1,000 ft of the line shall be in lengths of not more than 50 ft), an additional 2,000 ft of pontoon discharge line, of not less than 24 in ID, will be required for Osceola and Wolf River (Memphis) harbors; two (2) stiff pontoon elbows and two (2) swivels, equipped with winches or skidder barge with power winch and adequate fairleads or chocks; two (2) landing pontoons equipped with power winches and "A" frame; one (1) shallow draft spill barge (2 ft maximum draft) not less than 65 ft long by 26 ft wide with 28 ft minimum boom, designed to discharge 75 ft from waters edge, equipped with power winches, baffle plate, and spreader; and 6,500 ft of shore pipe with four sets of valves including wye branches. The pontoon line shall be equipped with satisfactory pontoons, winches, and anchors to operate the pontoon line in 12 ft per second current. The contractor may be required to submerge short lengths of the pontoon line in harbors in the vicinity of marinas to allow for passage of small vessels.

### 2.2.8 Tenders

Two (2) tenders for 24 hours operation per day of such size and design that either can adequately serve the dredge and attendant plant under any conditions to be encountered. The tenders shall be not less than 500 intermittent shaft horsepower and shall work in as little as 5 ft of water. In addition to the two tenders required above, one (1) additional tender of not less than 1,000 intermittent shaft horsepower is required for day shift operation (12 hours). Each of the tenders shall be of steel construction, twin screw, with conventional shallow draft river workboat design. Tugs are not acceptable. The minimum crew for each tender shall consist of one operator and one deckhand per shift.

### 2.2.9 Workboat/Crewboat

One (1) workboat, similar or equal to a 21-ft SeaArk Marine Utility Series Little Giant Model, with front and rear door, shall be required for crew transport, layout work, sounding, and general inspection. Workboat shall be equipped with the following: three outboard motors, not less than 100 horsepower each (one will be used as a spare); complete hydraulic steering system including wheel; cables, throttle controls, and electric starter for dual motors; and one digital read-out depth sounding machine, with paper scroll and remote digital readout, equal to a Interspace model 448, capable of obtaining continuous depth sounding measurements.

### 2.2.10 Dozers

Two (2) wide track D-5 Caterpillar bulldozers, or equivalent, shall be furnished for shore line work.

## 2.3 TECHNICAL EQUIPMENT

### 2.3.1 Production Recording Equipment

The dredge shall be equipped with recording vacuum, pressure, and RPM instruments to record pipeline pressure, pump vacuum, and pump revolution. Sufficient charts shall be provided to record data daily, and such charts shall be furnished to the Government.

### 2.3.2 Differential Global Positioning System (DGPS)

The contractor shall furnish, operate and maintain a complete Differential Global Positioning System (DGPS) to provide dredge positioning and alignment in the various dredging assignments of this contract. The system shall utilize DGPS equipment in conjunction with the U.S. Coast Guard Radio Beacon DGPS Network, to provide real time positioning using UTM Zone 15 or 16 coordinates. The contractor will be provided a diskette containing a Hypack file of the dredging cut layout for each individual assignment containing stationing, baseline information, and coordinates. The complete positioning system shall provide at a minimum the following features: (1) Complete real time display of the dredge in relation to the dredging cut, centerline ranges, and current 100-ft stationing shall be displayed on a VGA monitor located in the lever-room of the dredge, so that the inspector can determine the current and previous location of the dredge as it advances. (2) Data logging and recording to diskette of positioning information during the dredging assignment, to be turned in to the Corps inspector at the end of each assignment. (3) Printouts of screen data for any time interval, reflecting the advance of the dredge and the arc of the swing within the channel, shall be available upon request.

### 2.3.3 Depth Sounding Devices

The Contractor shall provide a depth-sounding device capable of obtaining continuous depth-sounding measurements in the area of the forward hull of the dredge. The depth shall be displayed in the lever room of the dredge.

### 2.3.4 Radio Equipment

The Contractor shall furnish and maintain the following radio equipment throughout the period of the contract:

#### 2.3.4.1 VHF FM Marine Radio

The Contractor shall furnish, maintain throughout the contract time, and operate in accordance with FCC regulations a VHF FM marine radio transceiver on the dredge, tenders, and survey skiff. Transceiver shall operate on the maritime frequency at 156.800 (Channel 16) and 156.650 (Channel 13).

#### 2.3.4.2 Lowband FM Radio

The dredge, tenders, and company vehicles shall be equipped with a lowband FM radio, which shall be used to provide oral communications between the dredge and the other units at the job site.

### 2.3.5 Cellular Phone

A cellular phone, with roof-mounted antenna, shall be provided in the lever room of the dredge. This phone shall be made available to Government personnel for official use only.

### 2.3.6 Gyro Compass

As a back-up for the DGPS system, the dredge shall be equipped with a gyro compass of such precision that dredging can be conducted using compass bearings if necessary.

## PART 3 EXECUTION (Not Used)

-- End of Section --

DIVISION 3

THRU

DIVISION 16

(NOT USED)

DIVISION 3 TABLE OF CONTENTS PAGE 1